

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

Claim 1 (Currently Amended): A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

- (1) culturing a microorganism, belonging to the ~~species *Mortierella* sp.~~ genus *Mortierella*, subgenus *Mortierella* and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;
- (2) collecting the cultured cells; and
- (3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claims 2-5 (Canceled).

Claim 6 (Previously Presented): The process according to claim 1, wherein the microorganism belonging to subgenus *Mortierella* and the genus *Mortierella* is strain SAM 2197 (FERM BP-6261).

Claim 7 (Previously Presented): The process for producing arachidonic acid or lipid containing arachidonic acid according to claim 1, wherein the carbon source concentration at the start of culturing is at least 8% by weight.

Claims 8-32 (Canceled).

Claim 33 (Currently Amended): A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

- (1) culturing a microorganism, belonging to the ~~species *Mortierella* sp.~~ genus *Mortierella*, subgenus *Mortierella* and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;
- (2) collecting the cultured cells; and
- (3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight

of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for about 5 to 10 days with agitation and an aeration rate of at least about 1 vvm.

Claim 34 (Previously Presented): A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism of strain *Mortierella* sp. SAM 2197 and having resistance to a carbon source of high concentration, in a medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claim 35 (Previously Presented): A process for producing arachidonic acid or a lipid containing arachidonic acid comprising the steps of:

(1) culturing a microorganism of the genus *Mortierella*, subgenus *Mortierella* and having resistance to a carbon source of high concentration, in a

medium having a carbon source concentration of at least 4% by weight at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, thereby forming arachidonic acid or a lipid containing arachidonic acid;

(2) collecting the cultured cells; and

(3) extracting arachidonic acid or a lipid containing arachidonic acid from the collected cells;

wherein the microorganism produces arachidonic acid of at least about 7 g/L culture medium when cultured in a medium containing at least about 4% carbon source at the start of culturing and the addition of at least an additional 6% by weight of carbon source during the culturing, and at least about 2% nitrogen source at the start of culturing for 5 to 10 days with agitation and aeration.

Claim 36 (Previously Presented): The process according to claim 35, wherein the microorganism is selected from section *Alpina*, section *Hygrophila*, section *Mortierella*, section *Schmuckeri*, section *Simplex*, section *Spinosa* and section *Stylospora*.

Claim 37 (Previously Presented): The process for producing arachidonic acid or lipid containing arachidonic acid according to claim 35, wherein the carbon source concentration at the start of culturing is at least 8% by weight.